

CONTINUOUS IMPROVEMENT PROJECT DATABASE

DIVISION 7 PROJECTS

Project Name	Project Description	Division	Project Year	Contact Name	Contact Number	Project Category
State Agencies Functioning Effectively Together	<p>There is a general lack of communication of information that would benefit the driving public.</p> <p>To improve communication and customer service the team provided existing equipment, DOT Message Boards, to State Highway Patrolmen to promote public awareness of "Operation Slow Down" program in an effort to make the highways safer to travel and save lives.</p> <p>SHP utilized the existing safety equipment to communicate the existence of their program to the public and the DOT increased their utilization rate for the message boards. By joining forces both agencies were able to provide the public with improved customer service, safer roads for all motorists, and the benefits of State Agencies Functioning Effectively Together Yearlong.</p>	Division 7 - Alamance County Maintenance	2009	Michael Venable	(336) 315-7080	Communications
Truck in a Box (TIB)	<p>Problem: It is hard to find wiring problems by yourself. It is not easy or convenient or cost effective to pull someone in to assist in the diagnostics of wiring of trucks and trailers.</p> <p>Solution: To design a box to set beside the truck so that one person can diagnose wiring problems, something that would be easily moved, easily read and easily understood while directing your attention to the cause of a problem and to help in the set up of wiring DOT truck and trailer equipment in the same manner to remove a lot of guess work.</p> <p>Results: The results have been a quicker and easier method of checking truck and trailer plugs. TIB has reduced time and labor which is equivalent to money. TIB is not expensive to build or to maintain. It has located misaligned wires in the trailer receptacle and trailer brake box, discovering that the trailer was wired backwards or not DOT specifications</p>	Division 7 Camp Burton Sub Shop	2008	Mark Brooks	(919)375-5831	Labor Hour Savings
Beam Winch	<p>We needed some way to pull the new pipe through the existing pipe without any equipment being placed in the stream. A winch would work, but where would we put it? How would we hold it? How would we charge the batteries? We determined that three H-Piles could be used to form a beam that would span the creek and provide a stable platform for the winch. The center H-Pile was offset from the two end H-Piles to help prevent twisting of the beam during the pulling process. Placement of the Beam Winch" across the concrete wing walls of the existing structure would provide ample support.</p> <p>The Equipment department had an arrow board that had been wrecked but the engine and charging system was still operational. It was stripped down to just the frame with the stabilizers used for legs.</p> <p>The liner pipe was installed in a safe process with minimum impact to the environment and traffic flow. The Department and DOT customers also benefited from the use of the recycled materials; winch, battery charging generator, and H-Piles. By using recycled materials we were able to save the Department a total of \$7263.09.</p>	Div 7	2007	Tim Powers	(336)-375-5589	Dollar Savings
Eliminate Temporary Traffic Signals	<p>Problem: A bridge replacement project on Meadow Road in Eden called for installing a temporary traffic signal during a temporary detour.</p> <p>Solution: After reviewing the plans and the actual conditions in the field, it was found that the traffic could be maintained by shifting the existing traffic circle.</p>	Operations- Division 7	2007	Randy McKinney	(336) 634-5635.	Dollar Savings
Electronic Bid Packages for DDC's and Districts	<p>Problem: Mailing bid packages reduces by three to five days the time a contractor has to prepare bids, which shortens the amount of time the contractor has to contact prospective subcontractors. In addition, considerable time is spent copying Advertisement Letters and Bid Proposals, which translates into additional money, materials and poor environmental stewardship.</p> <p>Solution: Rather than mailing out paper copies of bid proposal packages, password protected Word documents via email are sent. Drawings can be captured into jpeg files and emailed at the same time. If the files are too large to email, they can be transferred through the FTS system. This will save time, money, and manpower and be more environmentally friendly. Paper copies can be sent to contractors without computer access. Return receipts can be requested when sending an email to insure that the email is received.</p>	Operations - Division 7	2006	C.T. Huskins	(336) 256-0553	Customer Service

Eliminate Stream Relocation	<p>Problem: A bridge replacement project (TIP B-3630) on John Oakley Road in Caswell County called for relocating approximately 150 feet of an existing stream.</p> <p>Solution: Upon reviewing the plans and the actual conditions in the field, it was found that the project could be completed without relocating the existing stream.</p>	Operations - Division 7	2006	Randy McKinney	(336) 634-5635	Dollar Savings
Sign Board Safety Mirror	<p>Problem: The Incident Management Assistance Program (IMAP) drivers in Divisions 7 and 9 were having trouble verifying that the arrow board was up and functioning properly without getting out of the truck to visually inspect the board.</p> <p>Solution: In order to lower the risk of drivers being struck by passing motorists, a sign board safety mirror was placed on the truck to view the arrow board from inside the cab of the truck.</p>	Operations - Divisions 7/9	2006	Sam Whittington	(336) 315-7080	Safety Improvement
Fence Line Sprayer	In order to spray unwanted trees and weeds on control of access fences in areas where our spray trucks can not reach, the Division staff has used inmates to manually cut the fence or use back pack sprayers. This is a slow, labor-intensive operation and when you manually cut trees and do not treat the stumps with herbicide the trees will regrow additional stems and not solve the problem.	Operations - Division 7	2005	K.A. Taffer	(336) 334-3192	Cycle Time Reduction
Salt Brine Trough	Salt Brine operations are still rather new at the State and the current Emergency Response and Procedures Manual does not include Salt Brine calibration instructions. During the last snow / ice storm, our facility utilized the instructions listed in the Draft Skill Based Pay Operations Manual for Snow and Ice to calibrate Salt Brine equipment. These instructions are clearly written in a step-by-step procedure. The instructions call for the tank's feeder hose to be detached from the spray nozzle and spray bar during the calibration procedure and then reassembled once the equipment is calibrated. When our spray bar was damaged and repaired we had to recalibrate the equipment and discovered the feeder hose could not be detached from the spray bar. The CPI team decided that since we could not detach the spray bar from the feeder hose that we should create a trough to hang from the spray bar.	Operations - Division 7	2005	M.S. Venable	(336) 570-6815	Cycle Time Reduction
Bryan Blvd. Detour Revision	<p>The contract called for a detour on Bryan Boulevard where the Western Urban Loop crossed in order to build two new bridges. The original plan was to detour traffic in one direction while building the first bridge. Then, traffic would be detoured in the other direction onto the new bridge while the second bridge was built.</p> <p>The original plan would have traffic detoured for about eighteen months and called for the construction of long, temporary walls to allow for bridge construction. The contractor, APAC-Major Projects, along with English Construction, proposed that the detour alignment be redesigned to allow for both directions of traffic to be detoured at the same time, allowing the construction of both bridges to occur concurrently.</p>	Operations- Division 7	2005	Darrell Ferguson	(336) 334-3228.	Customer Service
Engineering Control for Lead Work	<p>It is a common practice to use fans to blow smoke away from cutting and welding operations. Division 7 Bridge Maintenance had difficulty positioning fans and maintaining airflow across the intended work area especially between I-Beams underneath bridges.</p> <p>Northern Industrial Tools Blue Blower has proven to be a compact fan that can be positioned easily to blow smoke away from welders. A powerful, portable blower moves up to 300 cubic feet per minute (300 CFM on high; 200 CFM on medium; 100 CFM on low), up to 30 feet away. Adjustable air direction controls heat, fumes, odors and dust. This fan system includes a 12-foot, 14-gauge grounded cord, 2 built-in 15 Amp grounded receptacles for power tools, a 115 volt motor and is UL approved.</p>	Operations-Division 7	2005	Tim Powers	(336) 375-5589	Safety Improvement
Skill Based Pay Learning Improvement	According to the National Institute for Literacy, more than 20% of adults read at or below a fifth grade level. In the course of developing the CPI project, we discovered that 25% of our transportation workers have significant literacy needs. To overcome this problem, the CPI team created several Skill Based Pay (SBP) books on tape. A team member reads the books aloud and records himself or herself on tape so that employees with reading difficulties can participate in the SBP program without being embarrassed about their educational limitations.	Operations- Division 7	2004	Michael Venable	(336) 570-6833	Customer Service
Use of Light Weight Aggregate	Loose aggregate on asphalt surface treatments has always been one of our major concerns. Complaints from property owners have been received due to excess aggregate that had been broomed into their yard to allow for road painting. Tort claims for cracked windshields and chipped paint have resulted. To solve this problem, we looked to the light weight aggregate suppliers in North Carolina for a material that has the same gradation of 2-MS sand. This enabled us to use the light weight aggregate screenings on our last application of asphalt emulsion to lock the quarried aggregate in place. This process allowed us to drop the final application of asphalt emulsion from .2 gallons per square yard to .16 gallons per square yard. This also enabled us to use only five pounds per square yard of light weight aggregate screenings versus 12 pounds per square yard of quarried aggregate. Light weight aggregate screenings that did not adhere to the asphalt emulsion were blown to the right of way and dispersed.	Operations- Division 7	2004	Mark Fogleman	(336) 334-3192.	Customer Service

Preformed Thermoplastic Detectable Warning (Wheelchair Ramps)	Standard procedure for retrofitting wheelchair ramps for the sight impaired with detectable warning now calls for truncated domes that can be felt underfoot or by canes as the boundary between pedestrian and vehicular routes. There have been issues in the past due to constructability problems with the concrete installation. The standard installation of the truncated domes usually consists of saw cutting and removing concrete. Pour new concrete and stamp with a rubber mat to form the domes, which has not always produced the dome effect. When the domes are not formed as required the process may have to be repeated numerous times. In addition to these possible problems, the concrete must be allowed to harden before use. By using preformed thermoplastic, the process consists of cleaning the area and laying an adhesive mat, heating, then rolling of new thermoplastic mat. The process takes around 20-30 minutes.	Operations- Division 7	2004	Bobby Norris	(336) 634-5635	Cycle Time Reduction
Pallet Return	Inventory and supplies that the Roadside Environmental Unit receives for our daily operation comes on pallets and gets stockpiled at the local yards. As the crews clean trash and debris from the yard, the pallets were taken to the landfill at a cost to the department.	Operations- Division 7	2004	Ken Taffer	(336) 334-3192	Dollar Savings
Auger Shaft Seals	Auger bearings on the tailgate spreaders were failing prematurely due to the gap on the inner side of the bearing allowing salt contact with bearing face. Some were failing in as little as six months. To address this problem seal plates and seals were fabricated and installed. The process utilized recycled road signs and supplies. Spreaders without this modification require bearings replacement twice a year, with the modifications they have had the same bearing for three years with no signs of corrosion or internal wear.	Operations- Division 7	2004	Randy Richardson	(336)-668-2855	Labor Hour Savings
Storm Relief	Due to the large number of Interstate and US highways that run through the division, each construction office has been assigned to a county to help the maintenance camps during storm events. Each maintenance camp has been allowed to use the construction personnel to best suit their needs. The construction personnel have been used to follow contract snow removal crews, help plow snow, and help clear debris from roadways	Operations-Div 7	2004	Kris Lorenz	(336) 334-3228.	Customer Service
Snow and Ice Removal	Due to the large number of roads that are in the division, residential streets were the last to have snow and ice removed. This caused an increase in the number of calls and complaints from the traveling public who were not able to reach the main roads. To address this problem, each construction office has been assigned at least one vehicle that is equipped with a snowplow. These vehicles are assigned to a county maintenance camp and are used for clearing residential streets during a snow event	Operations-Div 7	2004	Kris Lorenz	(336) 334-3228.	Customer Service
Salt Building Drapery	This CPI team was formed to resolve problems with our salt storage facility. The specific problem with our storage unit was shrinkage and polluting the nearby environment. During heavy rain events, rainwater would blow into the open front of our salt storage units and erode our salt piles. In addition, evidence of storm water runoff pollution was apparent because the surrounding grassy areas were dead and brown. The CPI team attempted several different ideas; however, their most innovative idea was the addition of drapery to the front of each salt building structure to prevent rainwater blowing into the storage units. The Salt building curtains consisted of fence posts, fence couplings, and tarps which were all available from the Central Depot in Raleigh. After installation there was no loss of salt and grassy areas recovered with the elimination of storm water runoff.	Operations-Div 7	2004	Michal Venable	(336) 315-7080	Environmental Sustainability
Improved Paint Markings	Newly paved contract roads are striped in two ways, either with paint or long life markings which is usually thermoplastic. On contract paint roads, there have been problems with the edge-line radii and the white mini skips wearing out before the rest of the road did. Mini skips are a paint line 4-inches wide and two feet long with an eight-foot gap between the mini skips. They are a continuation of the edge-line at intersections that help motorists on the main road continue to follow the flow of the road. They also help motorists on the intersecting road decide how far they can safely pull up at the intersection. A decision was made to add in the contract for these newly paved roads that the radii and the mini skip lines at intersections be put in with thermoplastic and that the width of the mini skips be increased to 6-inches.	Operations-Division 7	2004	Larry Lashley	(336) 256-0551	Safety Improvement
Caswell Lighting	During the adverse weather season of 2003, the existing lights in the Caswell County Maintenance yard did not provide adequate lighting to work in a safe and efficient manner. At that time, there was only one area light at the salt storage area. Two more area lights were located at the front of the maintenance yard. The only way to work safely with the existing lighting was to use headlights from dump trucks and flashlights. This was an unsafe working environment for the employees working throughout the night during adverse weather conditions. To correct this problem, the Caswell Safety team contacted local electrical contractors to provide bids to install 18 400-watt high-pressure sodium lighting fixtures onto the existing poles. The contract was awarded and the lighting fixtures were installed	Operations-Division 7	2004	Cindy Schrodt	(336) 694-6101	Safety Improvement

Scaffold Attachment for Concrete Headwall	There have been problems working on back side of a concrete headwall form. The Alamance Bridge Maintenance team made a 2' high X 3' wide angle and used 2-3/4 inch anchor bolts to anchor the form to the headwall. Once the scaffold supports were fabricated, they can be used whenever needed.	Operations-Division 7	2004	A.C. Levens	(336) 375-5589	Safety Improvement
Improved Litter Trucks	Due to shortage of guards for DOC crews and fewer DOT employees, Alamance Maintenance had a reduction of 63% in its litter patrols. Previous process for picking up litter involved using a pickup truck to haul litter to landfill. Pickup truck had limited capacity and required several trips to landfill. Team looked at options and decided a larger truck with Tommy Lift would reduce labor and trips to landfill. Two person crews can haul more in one load and can remove large appliances easier. Crews can stay in field longer and reduce trips to landfill.	Div 7	2003	Michael Venable	(336) 570-6833	Cycle Time Reduction
Air Compressor Air Hose Renovation	Rockingham County Maintenance Unit identified a problem in changing attachments on hose of compressor. Compressor coupling would wear due to twisting of hose during use which caused wearing of threads on coupling. Hose would sometimes disconnect under pressure which caused a safety hazard Employee suggested replacing threaded coupling with a quick couple coupling. For total cost of \$40.32, fast and easier connections can be made and since the hose swivels freely there are no twisted or kinked hoses.	Div 7	2003	L.R.Presnell	(336)634-5642	Safety Improvement
Recycled Appliances & Cross Line Pipes	Div. 7 was faced with serious budget problems which caused a 63% reduction of litter patrol crews. A deal was worked out to allow the crews to dispose of large appliances and metal cross pipes at the local recycling plant which they passed on the way to the landfill. As a result, 199,370 pounds of scrap appliances were recycled. In addition, they improved cycle time, created revenue and reduced the amount of trash and fees at the landfill	Div 7 Maintenance	2003	Michael Venable	(336)570-6833	Environmental Sustainability
CARS & HP320 Pilot Project	Currently, CARS is used to track citizen concerns by NCDOT and Form HP320 is used by the Highway Patrol to track citizen complaints about highways and rights of way. The HP320 is sent to DOT to address the problem and the back of form is completed and returned to Highway Patrol after issue is resolved. New process allows SHP to enter info directly into CARS instead of HP320. Old process took approximately 4 weeks to turn around, while new process provides real-time notification to appropriate unit and allows DOT to respond to issues in more timely manner.	Operations Div 4&7	2003	Debbie Leonard	(252)237-6164	Customer Service
Colored & Uniformed Survey Stakes for Environmental Areas	In summer of 2001, NCDOT initiated a new program to address environmental stewardship. A Division Environmental Officer (DEO) was created to assist field personnel in identifying environmentally sensitive areas. CPI team discovered that stakes were color coded red or white to identify sensitive areas, but had symbols that were confusing. Team decided to introduce a new color - pink - to identify environmentally sensitive areas. Since its introduction, no further mishaps have occurred and confusion has been eliminated. DEO meets with personnel to advise them of importance of pink stakes	Operations Div 7	2003	Michael Venable	(336)570-6833	Communications
Use of Fully Operated Rental Equipment to Condition SR Roads	Rockingham County had not been able to complete its Secondary Road Construction Program due to a number of factors beyond the Control of Henry Adkins, County Maintenance Engineer. In July 2001, he was given the task of constructing and paving all roads with right-of-way approval in previous year's programs and the current year (approx. 20 miles) by October 2002. Henry had to develop a method to construct the roads and have them prepared for Road Oil to pave this season while continuing to meet the maintenance needs. Henry met with John Hunsinger, District Engineer, to propose a plan with production as the goal. Three fully-operated rental equipment grade crews constructed as many as five roads at the same time to meet this goal. The volume of work produced so many roads with stone to be conditioned for paving that he switched one fully-operated rental equipment crews from grading to conditioning the roads for paving in April to allow his grade crew to continue construction with two fully operated rental equipment crews	OPERATIONS - DIVISION 7	2002	Henry Adkins	(336) 634-5642.	Cycle Time Reduction
Stockpiling Fill Material at Maintenance Camp	Alamance County Maintenance is responsible for the grading and construction of the Secondary Road Construction Program as well as other duties. One of the on-going duties is the search for and hauling of proper fill material to various projects. During the summer of 2001, DMV was beginning construction on a new facility approx. 1/2 mile from the maintenance Camp. The site they were building on required a large section of cut from the existing grade. The contractor would have to haul the material to an area located a great distance away. It was suggested that he could save both time and money by hauling his material just a short distance to the Maintenance Camp and stockpiling it there at no cost to NCDOT. In return, NCDOT could have a large amount of fill material on-site to be used at the Maintenance Engineer's discretion	OPERATIONS - DIVISION 7	2002	Derek Dixon	(336) 570-6833.	Cycle Time Reduction

Use of Fully Operated Rental Equipment to Condition SR Roads	Rockingham County had not been able to complete its Secondary Road Construction Program due to a number of factors beyond theControl of Henry Adkins, County Maintenance Engineer. In July 2001, he was given the task of constructing and paving all roads with right-of-way approval in previous year's programs and the current year (approx. 20 miles) by October 2002. Henry had to develop a method to construct the roads and have them prepared for Road Oil to pave this season while continuing to meet the maintenance needs. Henry met with John Hunsinger, District Engineer, to propose a plan with production as the goal. Three fully-operated rental equipment grade crews constructed as many as five roads at the same time to meet this goal. The volume of work produced so many roads with stone to be conditioned for paving that he switched one fully-operated rental equipment crews from grading to conditioning the roads for paving in April to allow his grade crew to continue construction with two fully operated rental equipment crews.	OPERATIONS - DIVISION 7	2002	Henry Adkins	(336) 634-5642.	Cycle Time Reduction
Blanket" Permanent Raised Pavement Marker Contract	Historically, the Traffic Services Supervisor waited until the spring to determine which roads had markers scraped off during the winter plowing operation. Quantities were based on state or division bid averages. The drawbacks were: 1) Having to wait until after the letting to determine exactly how many maps could be completed within the allotted budget. 2) Waiting until later in the year to let contracts, the greater chance that the contractor had already booked work. 3) Prices would generally be higher. A blanket contract for raised pavement marker was let December 5, 2001 instead of late March as in the previous year. The TrafficServices Supervisor estimated the quantity range and a percentage of roads that required raised pavement markers.	OPERATIONS - DIVISION 7	2002	Evan Andrews	(336) 256-0553	Dollar Savings
Cost Saving Operation for Drag Seal	The drag seal procedure was jeopardized due to a defective broom section. The broom bristles were not installed correctly to the wooden frames and were embedding in the seal making them a hazard to the public both pedestrians and motor vehicles. The team brainstormed to find an alternative method. A baseball infield was dragged with a chain link fence as part of the research. The uniformity within the field after this operation was observed. A ten-foot section of 9-gauge chain link fence was purchased; a 70-grade chain was attached to the fencing, and hooked to a pick up truck. The road was dragged with the fencing. The desired uniformity for 78m aggregate was obtained, the voids were filled within the aggregate, and the next application of liquid asphalt penetrated the aggregate effectively	OPERATIONS - DIVISION 7	2002	Mark Fogleman	(336) 334-3192	Dollar Savings
Truck Kitty Litter Box	According to our Stormwater Pollution Prevention Plan (SPPP), to avoid fluid leaks from exposure to rainfall and possibly causing the polluted rainwater from entering the storm drainage system, we should provide drip pans for all vehicles and equipment that leak. Some equipment such as asphalt distributors with spray bars, have many places where potential leaks originate and it becomes impossible and/or impractical to provide a drip pan. In reviewing this problem, the SPPP team originally built three drip pans for the Road Oil Unit to use. The SPPP team discovered several problems with the pans ranging from the number, the size, the weight of the pans, employee frustration with emptying them and disposing of the collected material.	OPERATIONS - DIVISION 7	2002	Michael Venable	(336) 570-6833.	Environmental Sustainability
Saturday CSWP Work Crew	DOT and DOC have been forced to cut back on personnel since Feb 2001. As a result, our office lost 63% of its regular patrol crews and DOC was unable to respond to any request for litter pick-ups due to a shortage of guards. For several years DOT and CSWP(Community Service Work Program) had severed their relationship due to conflicts. However to overcome the problems and past differences DOT's CPI team and CSWP met and were able to overcome the obstacles. CPI started utilizing the CSWP's Saturday pick-ups but also discovered several other useful ways to utilize this new resource,	OPERATIONS - DIVISION 7	2002	Michael Venable	(336) 570-6833	Labor Hour Savings
Guardrail Spraying Improvement	The guardrail spraying operation consisted of a 1000 gallon skid mounted sprayer on the back of a flatbed truck with two men leaning over the side of the truck spraying the front and back of the rails with herbicide using hand-held spray guns. This operation can be very dangerous on a multilane interstate with traffic volumes of 125,000 vehicles a day. Using the hand-held spray guns also limits the width of the area being sprayed. The area in front of the guardrail to the edge of pavement cannot be reached with the handheld spray gun, so a second round was necessary to apply herbicide to this area. This procedure doubles exposure to the herbicides, as well as to heavy traffic since the equipment must operate on the shoulder or in the road.	OPERATIONS - DIVISION 7	2002	Ken Taffer	(336) 334-3192	Safety Improvement

Improved Structured Flagger Training for All New Hires	Historically, scheduled and structured flagger training was only offered by ITRE once a year to the field maintenance employees. Since classes were limited, veteran employees who may or may not have been qualified to train new employees were assigned as mentors to the new hires. Both good and bad habits were passed on to new employees. By the time ITRE classes were available, the new employees may have been assigned to flagging duties for more than a year. As a result, the ITRE classes were ineffective. To end the cycle of poor flagging, the Alamance Maintenance CPI team worked with ITRE to increase the number of qualified trainers. All of the Transportation Supervisors were sent to the ITRE course for Flagger Instructor Training	OPERATIONS - DIVISION 7	2002	Michael Venable	(336) 570-6833	Safety Improvement
Pipe & Culvert Automated Video Inspection	Historically, scheduled and structured flagger training was only offered by ITRE once a year to the field maintenance employees. Since classes were limited, veteran employees who may or may not have been qualified to train new employees were assigned as mentors to the new hires. Both good and bad habits were passed on to new employees. By the time ITRE classes were available, the new employees may have been assigned to flagging duties for more than a year. As a result, the ITRE classes were ineffective. To end the cycle of poor flagging, the Alamance Maintenance CPI team worked with ITRE to increase the number of qualified trainers. All of the Transportation Supervisors were sent to the ITRE course for Flagger Instructor Training.	OPERATIONS - DIVISION 7	2002	Michael Venable	(336) 570-6833	Safety Improvement
Carbide Tipped Snow Plow Blade Results in Rockingham County	In our snow removal operation in Rockingham County, we had to change worn out plow blades frequently. Truck operators were losing an average of about two hours each time a blade was replaced, traveling from his route to headquarters, replacing the blade, and back to his push route. These delays caused safety concerns and unsatisfactory customer relations, along with additional labor and equipment hours required completing our snow removal operation. In 1998 Carbide Tipped blades were placed on two of our snowplows to be evaluated for cost and time savings. The results showed Carbide Tipped blades lasted ten times longer than regular steel blades, thus decreasing our cost and increasing employee efficiency with improved customer service	OPERATIONS DIVISION 7	2001	Henry Adkins	(336) 634-5642	Dollar Savings
Chipping to Reduce Brush Volume	Orange County Maintenance is responsible for the grading and construction of an annual secondary road program. One of the steps of this process is the clearing and grubbing of roadway rights of way prior to grading. The brush that was generated was trucked to local landfills using contracted and DOT operated dump trucks. The CPI team decided to utilize a contracted brush chipper to reduce the brush volume and to dispose of as many chips as possible by spreading them along the right of way limits or to provide to nearby property owners at no cost to the department. Hauling brush to a landfill would be done only when no other means available.	OPERATIONS DIVISION 7	2001	Chuck Edwards	(919) 732-4330	Environmental Sustainability
Sluice Gate Rod Cover	A number of roadside hazardous spill containment devices have been installed in Orange County to help prevent accidental releases of hazardous substances in the event of a traffic accident. The devices are controlled by manually operated sluice gates, which can contain the flow of a hazardous material in a stilling basin. These gates utilize a large hand wheel to turn a threaded rod that lifts a gate valve. The rod is exposed to weather and has required cleaning and lubrication approximately six times per year. The Orange County Maintenance team fabricated a cover for the rod by using scrap PVC pipe and fittings. The cover slides over the threaded rod and eliminates the loss of lubricant due to rain and wind. The cover can remain in place continuously, including during operation.	OPERATIONS DIVISION 7	2001	Chuck Edwards	(919) 7152533	Labor Hour Savings
Liftgate	In the past, there have been several minor muscle strains associated with lifting heavy objects into utility pick-up/trash trucks with a standard tailgate. It has always been difficult for one person to load heavy objects such as large animals and appliances alone. In order to reduce the risk of injury caused by lifting large heavy objects, the Caswell County Maintenance purchased a hydraulically powered liftgate (Tommylift) at a one-time cost of \$1,750.00. This liftgate will drop down flush with the ground and allow one employee to load all but the heaviest objects.	OPERATIONS DIVISION 7	2001	Herbert McDowell	(336) 694-6101	Safety Improvement
Snow Plow Jacks	The process of using a pry bar or lever to attach a snowplow on a dump truck is cumbersome in snowy conditions and can be hazardous. Normally three or four people are required to attach a snowplow to a dump truck (1 driver, 1 or 2 to use the lever and 1 to install the pins). In 2000, there was one injury due to a lever slipping and striking an employee on the shoulder. The Division 7 team recognized the potential for injuries and the difficulty of installing snowplows. The equipment department investigated the feasibility of adding a jack to the frame of the plow. Skid jacks were welded on the plow frame to adjust the height of the plow when attaching the plow to the truck.	OPERATIONS DIVISION 7	2001	Paul Ingram	(336) 375-5475.	Safety Improvement